

MYSTIC, CONN

7/1/55

DESIGN MEMORANDUM

ON

MYSTIC RIVER

CONNECTICUT

NEW ENGLAND DIVISION
CORPS OF ENGINEERS
U. S. ARMY
BOSTON 15, MASS.

CORPS OF ENGINEERS, U. S. ARMY
Office of the Division Engineer
New England Division
Boston 15, Mass.

NEDGW

1 July 1955

DESIGN MEMORANDUM ON MYSTIC RIVER,
CONNECTICUT

PERTINENT DATA

1. A summary of physical features and costs of the existing project for the Mystic River in Connecticut follows:

<u>Features</u>	<u>Present Estimate</u> <u>(1955)</u>
Completed Project Features (See para. 4)	\$ 12,000
Uncompleted Modification Widen 15' channel to Murphy Point, 9-foot anchorage and turning basin	<u>121,000</u> 1/
Total Construction	\$ 133,000

1/ Includes \$14,000 local cash contribution

PROJECT AUTHORIZATION

2. Authorization. - The River and Harbor Act approved 2 March 1945 authorized the channel improvement, anchorage and turning basin, as recommended in House Document No. 349, 77th Congress, 1st Session. This recommendation was for a channel 125 feet wide and 15 feet deep from deep water in Fishers Island Sound to the bend opposite Murphy Point, mile 2.4 in the Mystic River, a 9-foot anchorage basin of 8.5 acres north of Mason Island, and a 9-foot turning basin to be obtained by widening the channel to 200 feet for a distance of 400 feet about 500 feet downstream of the highway bridge.

3. The execution of the work is subject to the conditions that local interests contribute 50 percent, but not to exceed \$14,000 of the cost of

adjacent to the turning basin (estimated (1955) cost \$21,000) and hold and save the United States free from damage claims resulting from the improvement.

4. Existing Project. - The existing project was authorized by four River and Harbor Acts enacted between September 19, 1890 and March 2, 1945. It provides for a channel 15 feet deep and 125 feet wide from Fishers Island Sound to the bend opposite Murphy Point, thence 15 feet deep and 100 feet wide to the highway bridge at Mystic, thence 12 feet deep, generally 100 feet wide to a point about 700 feet above the wharf of the Mystic Historical Association, a total length of about 3.7 miles from the mouth; an anchorage basin 9 feet deep occupying 8.5 acres north of Mason Island; and a turning basin 9 feet deep about 500 feet below the highway bridge by widening the channel to 200 feet for a distance of 400 feet. All depths refer to mean low water.

5. The existing project is 9 percent complete. Channels to project depths but deficient in width have been secured. To complete the project requires widening the 15-foot channel by 25 feet up to Murphy Point, dredging the 9-foot anchorage basin north of Mason Island and the 9-foot turning basin downstream of the highway bridge in accordance with the modification authorized 2 March 1945. The controlling depths at mean low water were 13 feet in the middle half of the channel and 8 feet in the outside quarters of the 15-foot channel, and 9 feet in the 12-foot channel to the head of the project in 1953; 3 feet in the 9-foot anchorage in 1940; and 0 to 15 feet in the 9-foot turning basin in 1940. The head of navigation is about one-half mile upstream of the head of the project. Prior to improvements authorized in 1945, there were no requirements for local cooperation.

INVESTIGATIONS

6. A physical survey of the Mystic River was accomplished in August and September 1940. This survey included hydrography and determination of the nature of the bottom material in the proposed anchorage area north of Mason Island, and above the highway bridge; and hydrography from the railroad bridge to the upper limit of the project. The survey, together with data which was otherwise available, served as the bases for the report contained in House Document No. 349, 77th Congress, 1st Session.

7. The only survey undertaken since the latest authorization was a condition survey made in 1952 to determine the extent of shoaling in the 15 and 12-foot channel. No public hearings on this project have been held since the authorization. A preconstruction survey will be made in fiscal 1957.

LOCAL COOPERATION

8. Although no public hearings have been held since authorization, local interests have continued to express a desire for navigational improvements in the Mystic River. It is expected that the requirements for local cooperation, as set forth in paragraph 3, will be fulfilled when requested.

9. The principal representatives of those responsible for fulfillment of the requirement for a cash contribution and furnishing of spoil areas are the Towns of Stonington and Groton, Connecticut. The Governor of the State of Connecticut is empowered by state law to furnish the necessary assurances to hold and save the United States free from claims for damages due to the construction of the project.

LOCATION AND TRIBUTARY AREA

10. The Mystic River and its tributaries drain an area of about 27 square miles in southeastern Connecticut. The project is located in the tidal portion of the main stream south of Old Mystic. From Old Mystic its estuary trends in a southerly direction for about $5\frac{1}{2}$ miles past the villages of West Mystic, Mystic and Noank to its mouth on Fishers Island Sound. The mouth of the estuary, which is about a mile wide, lies 6 miles east of New London and 4 miles west of Stonington Harbor.

11. The area tributary to the project is not large, as it is sandwiched between the effective areas of New London and Stonington. The resident population in the environs of the project is relatively small, but during the summer season the population increases markedly. Activity in the project waters is at its peak during the summer months when numerous locally based and transient pleasure craft ply the waterway. In addition to yacht and boat clubs there are boat yards, fish landing and processing facilities, and industrial concerns along the project waters, which would benefit from the improvement.

PROJECT PLAN

12. The only item of work involved in the current modification of the existing project is dredging the channel, anchorage and turning basin to dimensions as set forth in paragraph 2. The material to be dredged is primarily mud and sand. The project plan consists of completing the project by dredging in fiscal year 1957 as shown on the attached map.

COST ESTIMATE (JULY 1955)

13. The estimated cost of completing the project by widening of the channel and providing an anchorage and a turning basin follows:

<u>Item</u>	<u>Cost</u>		
	<u>Federal</u>	<u>Non-Federal</u>	<u>Total</u>
Dredging 96,000 cu. yds of material @ \$0.96	\$ 81,800	\$ 10,700	\$ 92,500
Contingency allowance	12,400	1,600	14,000
Engineering and Design	4,700	500	5,200
Supervision and Administra- tion	<u>8,100</u>	<u>1,200</u>	<u>9,300</u>
	\$ 107,000	\$ 14,000	\$ 121,000
Public landing	-	\$ 21,000	\$ 21,000

14. The quantity of dredging given above is identical to that in House Document No. 349, 77th Congress, 1st Session (1941). However, the estimated cost has increased from \$34,000 to \$121,000. This increase is a result of increased construction costs since 1940.

SCHEDULES FOR DESIGN AND CONSTRUCTION

15. The time required to complete the dredging is estimated at four months, exclusive of the period of preconstruction activity. Preliminary planning, preparation of standard plans and specifications, advertising for bids, awarding the contract and mobilization of equipment will require six months in fiscal 1957. The work required to complete the project is proposed to be accomplished under contract in fiscal year 1957 for which \$107,000 would be required.

MAINTENANCE

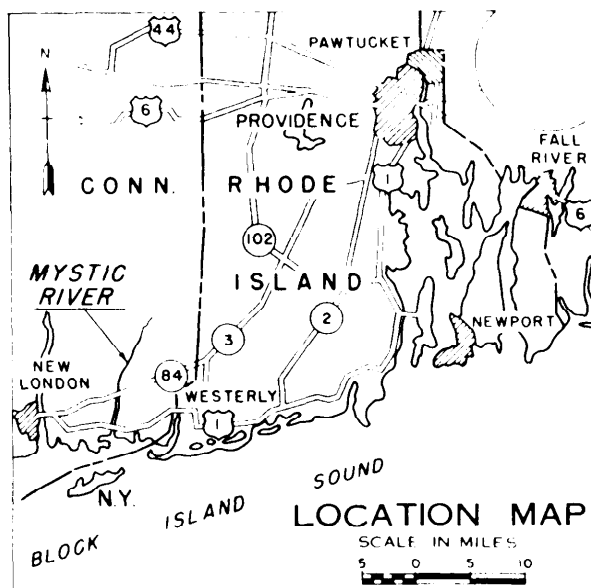
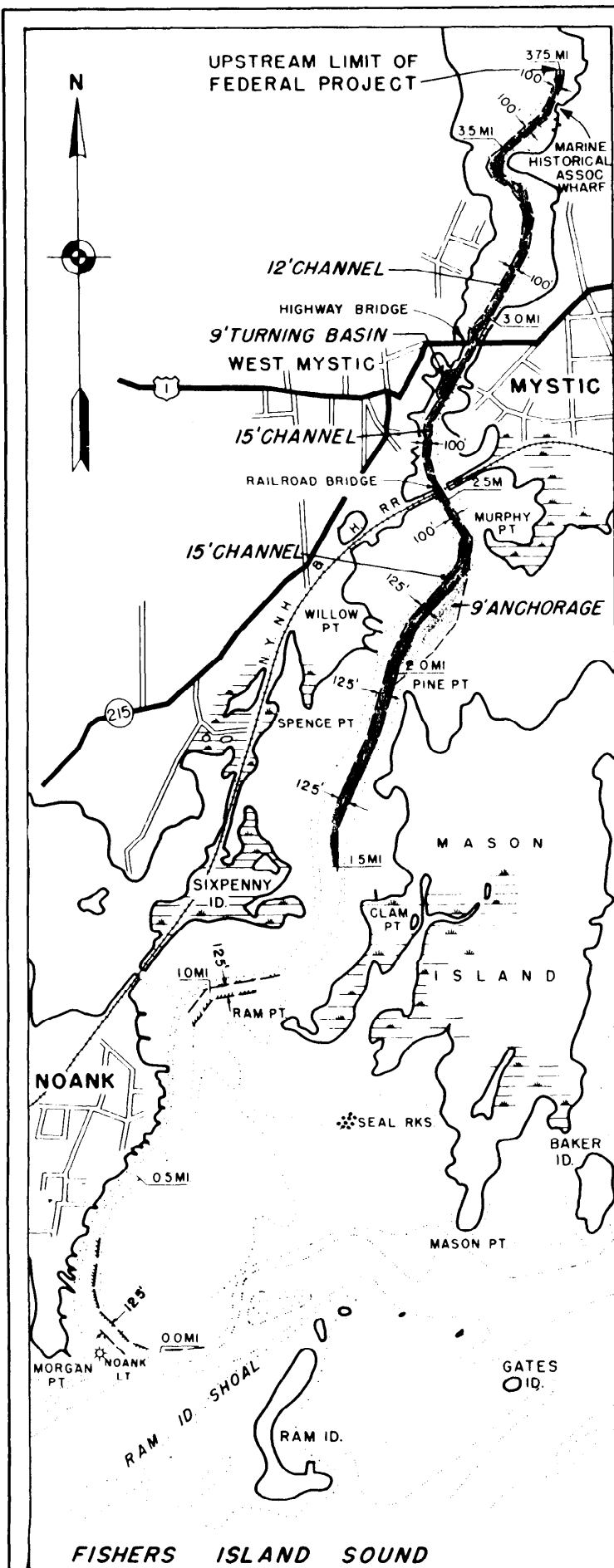
16. The latest (1950) approved estimate for annual cost of maintenance on the existing project is \$2,500. To date, some \$45,300 has been expended for maintenance of the completed portion of the project.

BENEFITS

17. In recent years, numerous groundings and delays have resulted from the lack of sufficient widths especially at sharp bends in the tortuous Mystic River Channel. Transient craft have anchored in the channel for lack sufficient water depths elsewhere and have thereby introduced additional hazards to the waterway. As a result of these conditions, potential patrons of the area's facilities have undoubtedly avoided navigating in the river. The presently authorized project, if realized, would be sufficient to

eliminate these undesirable conditions, and increased use could be anticipated. In addition, the project would become a more satisfactory harbor of refuge for small craft.

18. The estimated annual benefits are \$18,000 for increased recreational business and refuge value. The annual charges are estimated to be \$8,000, and the resulting benefit-cost ratio is 2.2 to 1. The above benefits are based on those evaluated in the survey report (1940). A re-evaluation has not been made. The value of the benefits is considered to have increased in proportion to the increase in cost levels since 1940.



BRIDGE CLEARANCES

NYNH & H.R.R. BRIDGE (SWING)

Hor. 63 ft, Left Draw Span
65 ft. Right Draw Span

Vert 45 ft, M.H.W.

HIGHWAY BRIDGE (BASCULE)

Hor. 65 ft

Vert 45 ft M.H.W.

Present depth approx 3 ft. in the 9 ft anchorage. 0 to 15 ft in the 9 ft turning basin.

LEGEND



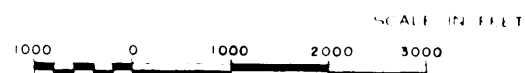
WORK COMPLETED AS OF
30 JUNE 1956



WORK PROPOSED WITH FUNDS
RECOMMENDED FOR F.Y. 1957

TO ACCOMPANY DESIGN MEMORANDUM
DATED 1 JULY 1955

MYSTIC RIVER, CONN.



NEW ENGLAND DIVISION, BOSTON, MASS.